

Invicta Chery Bury**Rochdale Road, Bury****Introduction**

This Energy Statement has been produced by SRA Architects Ltd as part of the planning application for the refurbishment and minor extension of an existing automotive dealership building into a Chery Dealership at Rochdale Road, Bury. The document particularly aims to demonstrate how the application satisfies the Places for Everyone Joint Development Plan policy JP-S2:Carbon and Energy Requirements. This document also makes reference to the specific subsections of policy JP-S2 which relate to refurbishment schemes, and how they have been considered in the development of the design proposals.

This report provides an overview of the design approach which aims to reduce energy consumption and carbon emissions.

It has been the intention throughout the project to create a building that reduces carbon emissions by passive measures, through specifying building elements with high performing U-Values and through using low energy building services that go beyond minimum Building Regulations Part L requirements.

Energy Design Considerations

The new building fabric will be designed to achieve, and likely exceed, the required U-Values as set out in Part L of the Building Regulations. This will ensure that the new building fabric minimises the operational carbon of the dealership once construction is complete.

Re-use

In order to minimise the embodied carbon involved with a new build development, the proposal seeks to refurbish the existing building, whilst incorporating a modest extension to the existing showroom area. This will significantly reduce the overall carbon emissions associated with demolishing and rebuilding the existing building by reusing as much of the existing fabric as is practicable.

Low Energy Design Features

It is always the client's ambition to reduce the building energy consumption and carbon emissions using passive measures and the incorporation of high efficiency building services.

As well as reducing in use carbon emissions, this approach also ensures that the building is economical to run by reducing energy consumption, and therefore operating costs for heating, cooling, ventilation and lighting.

Improving Thermal Fabric Performance

To minimise heat gains in the summer and to reduce heat losses in winter the thermal transmittance (U-Values) for external walls and roof will be specified to meet or exceed the minimum requirements of Part L.

The reduction in heat gains will reduce energy requirements for cooling and the reduction of heat losses will reduce energy used for heating.

High Specification Glazing

Being a car dealership, the building incorporates large expanses of glazing for the display of vehicles. In order to minimise heat loss during winter, the glazed extension will be double glazed insulated units with argon filled cavities.

Natural Ventilation

The use of natural ventilation to minimise the reliance on mechanical ventilation will be considered.

High Efficiency Lighting and Controls

To further reduce overall energy consumption, high efficiency LED lighting is proposed throughout the development. Lighting to the main showroom area will be controlled via lighting control system to allow a proportion of the fittings to be switched off under high natural daylight conditions. The showroom lighting controls will also provide a scheduling facility.

The proposed LED luminaires will have a lighting efficacy, luminaire lumen/circuit watt, which is a significant improvement over the Part L recommended minimum efficacy.

Lighting in other areas shall be controlled via an absence detection strategy to ensure lights are switched off automatically when a room is unoccupied.

Mechanical Heat Recovery Ventilation

In response to policy JP-S2 1. '*Promoting and retrofitting of existing building with measures to improve energy efficiency and generate renewable and low carbon energy, heating and cooling.*' Mechanical ventilation is to be investigated for use through the showroom and office areas. This could include heat recovery units to allow for heat to be recovered from extracted air to reheat incoming fresh air. This will minimise heat losses through mechanical ventilation and reduce the overall load on the heating plant to maintain internal temperatures.

High Efficiency Heating and Cooling

If existing systems are deemed at end of serviceable life, new heating and cooling to showroom and office areas will be via high efficiency VRF air source heat pump systems.

Cooling

If existing systems are deemed at end of serviceable life, cooling requirement will be provided using very high efficiency VRF condensers. These have exceptional seasonal efficiencies and provide superior performance over conventional chilled water systems.

Low and Zero Carbon Technologies

In response to policy JP-S2 3. '*Taking a positive approach to renewable and low carbon energy schemes*' and to further reduce carbon emissions several low or zero carbon technologies will be considered.

Carbon reductions will primarily be achieved through the use of passive measures as detailed previously within this report.

Photo voltaic panels may be considered as they can provide a cost-effective solution through introducing renewable energy to the site.

Summary

Based on the initial assessment, the following strategies will be developed and included in the design for the building and its mechanical and electrical services:

Passive Design

The thermal properties of the new extension will be carefully considered and subsequently the U-Values will be reduced to this new area of the building.

Glazing

Glazing with excellent thermal properties including low G values will be selected to achieve low heat gains/losses.

Low and Zero Carbon Technologies

Photo Voltaic Arrays and VRF Reversible Heat Pump Systems will be considered in the design to provide a significant source of energy from on-site renewable sources. The VRF air source heat pump has variable speed technology which provides very high efficiencies in heating and cooling mode.